

## Book Review

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### IMPROVING NATURE? THE SCIENCE AND ETHICS OF GENETIC ENGINEERING.

By Michael J. Reiss and Roger Straughan  
Cambridge University Press, Cambridge, UK, 1996,  
288 pp.

If you think that this book will answer the question in its title, think again. The authors, one a biologist-priest and the other a moral philosopher, wisely refrain from making judgments. They present facts, point out the issues, and leave the readers to decide for themselves. The book will be of particular value not to the genetical or ethical professionals, but to the amateurs who want to gain a balanced view of the scope, advantages, dangers, and ethical implications of genetic engineering.

The first section of the book reviews, for the uninitiated, the essential biology underlying genetic engineering, and the general concerns—moral, ethical, and theological—raised by its wide applications. The second section has four chapters dealing more specifically with the range of applications and possible implications of genetic engineering in microorganisms, plants, nonhuman animals, and humans. The third section discusses public understanding of genetic engineering, and the need for education. The references, drawn from sources ranging from Leviticus to *The New Scientist*, include some as recent as 1995.

The chapter on “practicalities” of genetic engineering might have been more appropriately entitled “basics.” It does not get very far into the practicalities, and may give the impression that genetic engineering is easier than it is. This is the weakest chapter in an otherwise useful book. It would have benefited from a statement, near the beginning, that the gene for a particular pro-

tein is a series of bases at a particular place in the DNA, the sequence of which determines the sequence of amino acids in that protein, and hence its structure and function. Without this concept the story is hard to follow. The writing is a bit loose in spots, e.g., “It is the variability of the structure of DNA that enables a cell to make all these different proteins.” The authors sometimes appear to be “writing down” to the reader, e.g., “As in any human language, the words are read only in one direction (e.g., left to right in English, right to left in Arabic).”

The second section gives a balanced view of what genetic engineering can do, ranging from bovine somatotrophin (microorganisms), through pesticide resistance (plants), and transgenic rodents as models for human disease, to human gene therapy. Each chapter reviews what can be and has been done, and the implications thereof, describes a few examples in more detail, and presents views pro and con in a very balanced way.

The final section considers how well the public understands the issues, and the need for education, not just information or, God forbid, persuasion. The authors conclude that it would be oversimplistic to attempt to attempt to reach any overall conclusion about the rightness or wrongness of genetic engineering per se; a case by case approach is needed.

So will genetic engineering really improve Nature? Maybe.

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